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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,299	12/04/2003	Wen-Kuen Chen	10660-US-PA	1298

31561 7590 06/24/2005

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER

RIELLEY, ELIZABETH A

ART UNIT PAPER NUMBER

2879

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/707,299

Applicant(s)

CHEN ET AL.

Examiner

Elizabeth A. Rielley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application

filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang (US 6798134).
6. In regard to claim 1, Wang teaches an organic light emitting device (10; figure 1), comprising: an anode layer (14) formed on a substrate (12); a first mixing layer formed over the anode layer, wherein a material of the first mixing layer (first part of layer 16 connecting the anode; column 3 lines 33-44 and 64-65) is a mixture of a hole transport material (component A, content x) and an electron transport material (component B content y); a mixing layer formed on the first mixing layer (middle of layer 16); wherein a material of the mixing layer is a mixture of an organic light emitting material (component C; the electron injection material is made from an organic light emitting material, see column 4 lines 25-26 and column 2 lines 20-24), the hole transport material (A) and the electron transport material (B); a second mixing layer (top part of layer 16 near the cathode) formed on the mixing layer, wherein a material of the second mixing layer is a mixture of the hole transport material (A) and the electron transport material (B); and a cathode layer (18) formed over the second mixing layer; wherein, when a volume ratio of the hole transport material to the electron transport materials in the mixing layer is X % (i.e.: component A to component B), a volume ratio of the hole transport material to the electron transport materials in the first mixing layer decreases gradually from 99% to X % starting from a surface adhered to the anode layer, wherein a volume ratio of the hole transport material to the electron transport material in the second mixing layer increases gradually from X % to 99% starting from a surface adhered to the mixing layer (column 3 line 64 to column 4 line 2). Please see attached prior art drawing.
7. In regard to claims 2 and 8, Wang teaches a hole injection layer between the first mixing layer and the anode layer (15; figure 1; column 3 lines 24-26).

8. In regard to claims 3 and 9, Wang teaches an electron injection layer between the second mixing layer and the cathode layer (not shown in drawings: component C content Z; column 4 lines 1-6, since z may lie with the range of 0 to 100%, and $x+y+z=100\%$, see column 3 line 45, then the very last layer made before the cathode would be an electron injection layer).
9. In regard to claim 4, Wang teaches the volume ratio of the hole transport material to the electron transport material in the mixing layer is 50% (column 4 lines 10-11 teach that the variations may be linear, hence as A decreases from 99% to 0% and B increases from 0% to 99% from the anode to the cathode, they would meet at 50%), whereby then the volume ratio of the hole transport material to the electron transport material in the first mixing layer decreases gradually from 99% to 50% starting from the surface adhered to the anode layer, and the volume ratio of the hole transport material to the electron transport material in the second mixing layer increases gradually from 50% to 99% starting from the surface adhered to the mixing layer (column 3 line 64 to column 4 line 15).
10. In regard to claims 5-6 and 10-11, Wang teaches a material of the anode and cathode layers comprises a transparent conductivity material or a non-transparent conductivity material (column 3 lines 16-17 and column 4 lines 37-51).
11. In regard to claim 7, Wang teaches an organic light emitting device (10; figure 1), comprising: an anode layer (14) formed on a substrate (12); a hole transport layer formed over the anode layer (bottom part of layer 16; Component A content $x = 100\%$ at the anode later; column 3 lines 64-35; $x+y+z=100\%$; column 3 line 45; therefore the entire layer is made from hole transport material) a mixing layer formed on the hole transport layer; wherein a material of the mixing layer is a mixture of an organic light emitting

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material (component C, see paragraph 5), a hole transport material (component A) and an electron transport material (component B), wherein a volume ratio of the hole transport material to the electron transport material in the mixing layer decreases gradually from 99% to 1% from the surface adhered to the hole transport layer (column 3 line 64 to column 4 line 2); an electron transport layer (component B) formed on the mixing layer (column 4 lines 3-4); and a cathode layer (18) formed over the electron transport layer.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shi et al (US Patent 613001) discloses an OLED with a mixing layer for the EL layer.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Rielley whose telephone number is 571-272-2117. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

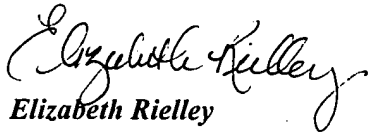
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Elizabeth Rielley

Examiner
Art Unit 2879

msz 6/23/05
Mariceli Santiago
AU 2879

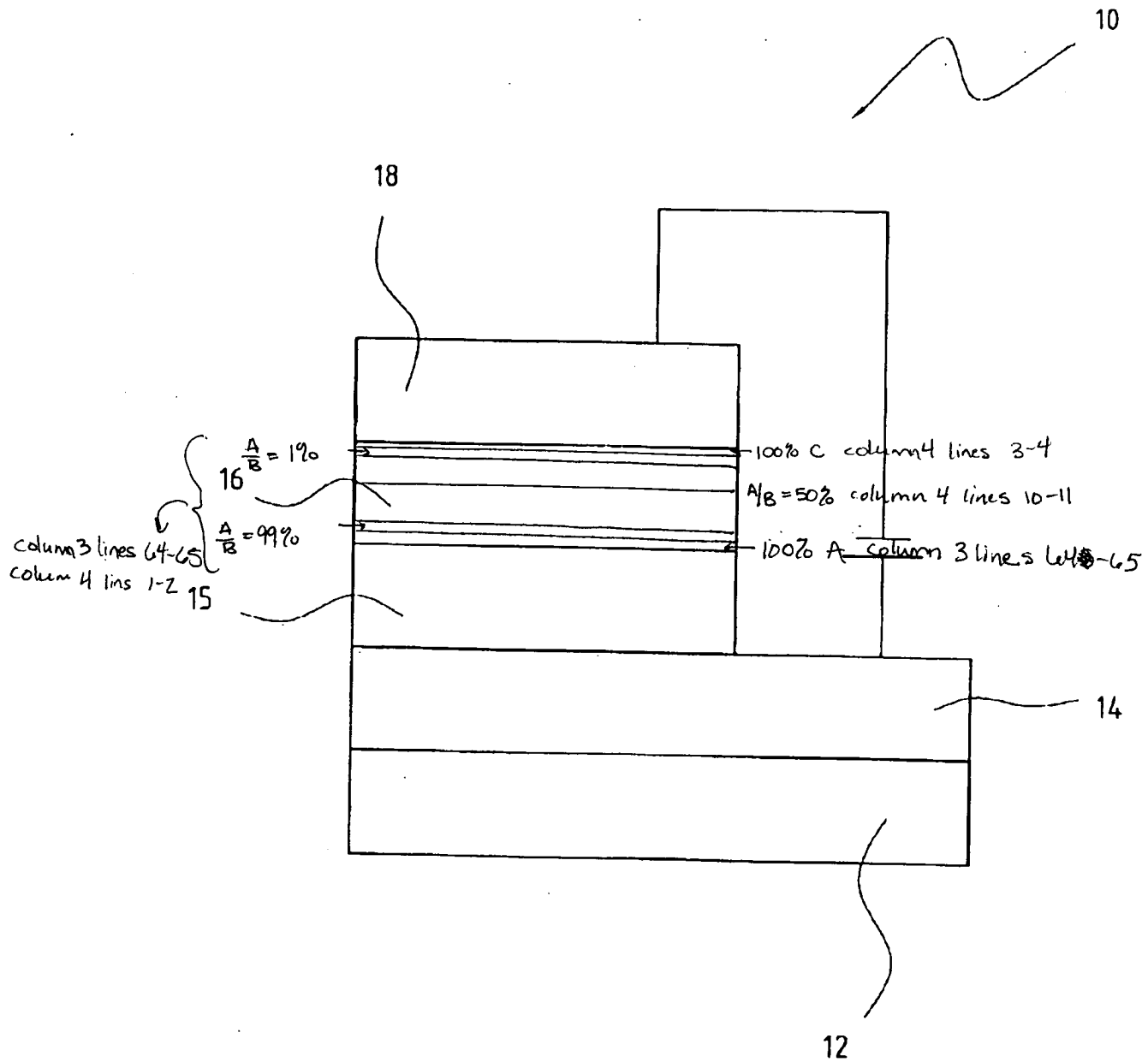


FIG. 1